

## Case 3317

***Scarabaeus arenarius* Olivier, 1789 (currently *Aphodius arenarius*) and *Scarabaeus fasciatus* Olivier, 1789 (currently *Aphodius fasciatus*) (Insecta, Coleoptera): proposed conservation of the specific names**

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**Abstract.** The purpose of this application, under Article 23.9.3 of the Code, is to conserve the specific names of the scarab beetles *Scarabaeus fasciatus* Olivier, 1789 (currently *Aphodius fasciatus*) and *S. arenarius* Olivier, 1789 (currently *Aphodius arenarius*). These names are junior primary homonyms of *S. fasciatus* Linnaeus, 1758 (currently *Trichius fasciatus*) and *S. arenarius* Fabricius, 1787 (currently *Aegialia arenaria*) respectively. Despite their homonymy the two specific names have been used since publication and are currently in use. *S. fasciatus* Linnaeus and *S. fasciatus* Olivier have never been considered congeneric, and *S. arenarius* Fabricius and *S. arenarius* Olivier have not been considered congeneric since 1807. *Trichius fasciatus* (Linnaeus) is a common and well-known polliniphagous Palaearctic species of the subfamily TRICHIINAE. *Aegialia arenaria* (Fabricius) (subfamily AEGIALIINAE or subfamily APHODIINAE, tribe AEGIALIINI) is a localized European sand-dwelling scarab beetle. *Aphodius (Planolinus) fasciatus* (Olivier) and *Aphodius (Plagiogonus) arenarius* (Olivier) are well-known European dung beetle species (subfamily APHODIINAE, tribe APHODIINI). It is also proposed that the name *Scarabaeus putridus* Geoffroy in Fourcroy, 1785 should be suppressed.

**Keywords.** Nomenclature; taxonomy; Coleoptera; SCARABAEIDAE; APHODIINAE; AEGIALIINAE; TRICHIINAE; *Aphodius arenarius*; *Aphodius fasciatus*; *Aegialia*; *Trichius*; dung beetles.

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1. Linnaeus (1758, p. 352) described *Scarabaeus fasciatus*, a common European pollen feeding chafer, known as the bumblebee beetle. The species was transferred to *Trichius* Fabricius, 1775 (SCARABAEIDAE, TRICHIINAE) by Fabricius (1775, p. 40) where it has remained. Latreille (1810, p. 428) designated it as the type species of the genus *Trichius* Fabricius. A lectotype has not been designated, but four syntypes are preserved in the collection of the Linnean Society of London (Landin, 1956b, p. 12). *Scarabaeus fasciatus* Linnaeus, 1758 has been placed on the Official List of Specific Names in Zoology (Opinion 2079, September 2004).

2. Olivier (1789, p. 90) described *Scarabaeus fasciatus*, a widespread Palaearctic dung beetle. The species was transferred to *Aphodius* Illiger, 1798 (SCARABAEIDAE, APHODIINAE) by Fabricius (1801, p. 79) where it has remained. The lectotype was designated by Landin (1956a, p. 218f) and is deposited in The Natural History Museum, London, in the Banks collection. It is identical to *Aphodius putridus* (Herbst, 1789, nec Geoffroy in Fourcroy, 1785) (Landin, 1956a, p. 218). Silfverberg

(1977, p. 91) recognized the preoccupation of *A. fasciatus* (Olivier) and proposed *Aphodius tenellus* Say, 1823 as the oldest available name for that species. This has been followed by a number of authors as shown in para. 10 below. However, already in 1967, Brown stated that *Aphodius uliginosus* Hardy, 1847 is the oldest available (i.e. non-preoccupied name) for *Scarabaeus fasciatus* Olivier, because *Aphodius tenellus* Say, 1823 is a different species. In spite of the formal preoccupation of *Aphodius fasciatus*, this name is still in use, simultaneously with the two other names (see paras. 10 and 11).

3. In 1801 (p. 68), Fabricius used the name *Aphodius fasciatus* for another new species although he had adopted this binomen for Olivier's species already (see para. 2). This was an error since the type of this species is labelled '*Aphodius unifasciatus*' in Fabricius's hand (Landin, 1957). *A. fasciatus* Fabricius is a junior synonym of *A. coniugatus* (Panzer, 1795) (Illiger, 1803, p. 292; Landin, 1957). It has not been treated as a valid name since, and is a junior secondary homonym of *Aphodius fasciatus* (Olivier, 1789).

4. Fourcroy (1785, p. 12) described in six words *Scarabaeus putridus* (the name given by Geoffroy, see d'Aguilar & Raimbault, 1990), which was synonymized with *Scarabaeus arenarius* Fabricius, 1787 by Olivier (1789, p. 97). The name had been forgotten until Bedel (1911, p. 48) rediscovered and used it as the valid name for the species *Aphodius arenarius* sensu Olivier. The type is not known (Dellacasa, 1988, p. 186). Hence, its specific identity was considered by Landin (1956a, p. 224) 'impossible to interpret' and by Dellacasa (1983, p. 389) to be indecipherable ('indecifrabile'). Baraud (1992, p. 249) denies the synonymy of Fourcroy's *Scarabaeus putridus* with *Aphodius arenarius* (Olivier): '*putridus* auct., nec Fourcroy'.

5. Herbst (1789, p. 160f) described *Scarabaeus putridus*, a junior homonym of Fourcroy's (1785) *S. putridus*. The species was transferred to *Aphodius* Illiger, 1798 (SCARABAEIDAE, APHODIINAE) by Illiger (1798, p. 30, as a synonym of *A. foetidus* (F.)). It has remained in this genus. No type specimen is known (Dellacasa, 1988, p. 186).

6. Sturm (1805, p. 125) described *Aphodius putridus* (SCARABAEIDAE, APHODIINAE). It has been considered a synonym of *A. borealis* Gyllenhal, 1827 (Dellacasa, 1988, pp. 186, 393; Baraud, 1992, p. 251). However, no type specimen is known (Dellacasa, 1988, p. 186). Apart from Ádám (1994, 1996), *A. putridus* Sturm has not been treated as a valid name since and is a junior secondary homonym of *Scarabaeus putridus* Geoffroy in Fourcroy, 1785.

7. Fabricius (1787, p. 11) described *Scarabaeus arenarius*. The species was transferred to *Aphodius* Illiger, 1798 (SCARABAEIDAE, APHODIINAE) by Illiger (1798, p. 22), to *Psammodyus* Fallén, 1807 by Fallén (1807, p. 37), and finally to *Aegialia* Latreille, 1807 by Dejean (1821, p. 55) (SCARABAEIDAE, AEGIALIINAE) where it has remained and is the type species. It has been used constantly and frequently since its description (e.g. Stebnicka, 1977, p. 460 (older references therein); Paulian & Baraud, 1982, p. 89; Jessop, 1986, p. 17; Lundberg & Gustafsson, 1986, p. 65; Dellacasa, 1988, p. 359; Král, 1989, p. 19, 1993, p. 68; Lumaret, 1990, p. 338; McNamara, 1991, p. 147; Tiberghien, 1991, p. 225; Baraud, 1992, p. 105; Krell & Fery, 1992, p. 210; Silfverberg, 1992, p. 37; Duff, 1993, p. 127; Rössner, 1993, p. 6; Gürlich, Suikat & Ziegler, 1995, p. 71; Hansen, 1995, p. 125; Anderson et al., 1997, p. 27; Bordat, 1997, p. 37; Cantonnet, Casset & Toda, 1997, p. 107; Telnov et al., 1997, p. 55; Köhler & Klausnitzer, 1998, p. 129; Bunalski, 1999, p. 13). The

lectotype has been designated by Landin (1956a, p. 223) and is deposited in Fabricius's collection in Kiel.

8. Olivier (1789, p. 96 [Scarabé]) used *Scarabaeus arenarius* for a different species. He adopted this name for *Scarabaeus putridus* Geoffroy in Fourcroy, 1785, and cited *Scarabaeus arenarius* Fabricius with a question mark. The latter synonymy was definitely rejected by Illiger (1800, p. 201) in his annotated translation of Olivier's monograph. However, the name *S. arenarius* became established with Olivier's authorship. The species was transferred to *Aphodius* Illiger, 1798 (SCARABAEIDAE, APHODIINAE) by Fabricius (1801, p. 82) (as a synonym of *Aphodius arenarius* (F.)) where it has remained. The type is deposited in the Muséum national d'Histoire naturelle, Paris (Dellacasa, 1988, p. 90).

9. *Scarabaeus fasciatus* Olivier, 1789 is a junior primary homonym of *Scarabaeus fasciatus* Linnaeus, 1758. However, as shown in paras. 1 and 2 above, the two binomina *Scarabaeus fasciatus* had never been used simultaneously since *S. fasciatus* Linnaeus had been transferred to *Trichius* 14 years before *S. fasciatus* Olivier was described. Therefore they have never been considered congeneric and will never be because the species belong to two different subfamilies which are, according to some authors, even families. Despite their homonymy both names have been used constantly and frequently since their description (for the junior homonym *Aphodius fasciatus*, see para. 10, for the senior homonym *Trichius fasciatus*, see Paulian & Baraud, 1982, p. 397; Stebnicka, 1983, p. 132 (older references therein); Jessop, 1986, p. 30; Lundberg & Gustafsson, 1986, p. 68; Nikolaev, 1987, p. 207; Král, 1989, p. 25, 1993, p. 70; Dzhambazishvili, 1990, p. 57; Gangloff, 1991, p. 54; Baraud, 1992, p. 774; Silfverberg, 1992, p. 39; Duff, 1993, p. 132; Rössner, 1993, p. 13, 1996, p. 52; Ádám, 1994, p. 10; Carpaneto & Piattella, 1995, p. 15; Gürlich, Suikat & Ziegler, 1995, p. 73; Alexandrovitch, 1996, p. 30; Kahlen & Hellrigl, 1996, p. 476; Nikritskii et al., 1996, p. 59; Cantonnet, Casset & Toda, 1997, p. 109; Inglebert, 1997, p. 54; Telnov et al., 1997, p. 58; Brandstetter & Kapp, 1998, p. 68; Köhler & Klausnitzer, 1998, p. 131; Bunalski, 1999, p. 28; Rössner & Schulze, 1999, p. 59; Mitter, 2000, p. 107; Negrobov, 2000, p. 94; Rössner & Kaltz, 2000, p. 10; Bragina, 2002, p. 90).

10. Presently four different names are used for one species:

*Aphodius fasciatus* (Olivier, 1789) (Dellacasa, 1983, p. 386; Jessop, 1986, p. 8; Nikolaev, 1987, p. 123; Berlov, 1989, p. 400; Gangloff, 1991, p. 40; Krell & Fery, 1992, p. 218; Duff, 1993, p. 128; Rössner, 1993, p. 7, 1996, p. 50; Gürlich, Suikat & Ziegler, 1995, p. 72; Kahlen & Hellrigl, 1996, p. 475; Brandstetter & Kaupp, 1998, p. 67; Köhler & Klausnitzer, 1998, p. 130; Bunalski, 1999, p. 21; Mitter, 2000, p. 85; Rheinheimer, 2000, p. 104);

*Aphodius putridus* (Herbst, 1789) (Stebnicka, 1976, pp. 22, 119; Bast, 1985; Dellacasa, 1988, p. 393; Dzhambazishvili, 1990, p. 31; Franzen, 1992, p. 244; Koch, 1993, p. 230; Kim, 1995, p. 70, 2000, p. 100; Negrobov, 2000, p. 93);

*Aphodius tenellus* auct. nec Say, 1823 (Paulian & Baraud, 1982, p. 183; Stebnicka, 1983, p. 96; Lundberg & Gustafsson, 1986, p. 66; Král, 1989, p. 22; Silfverberg, 1992, p. 37; Miländer et al., 1993, p. 21; Nikritskii et al., 1996, p. 55; Roslin, 2000, pp. 323, 355);

*Aphodius uliginosus* Hardy, 1847 (Lumaret, 1990, p. 250; Baraud, 1992, p. 251; Král, 1993, p. 69; Ádám, 1994, p. 13, 1996, p. 304; Hansen, 1995, p. 126; Carpaneto & Piattella, 1995, p. 8; Alexandrovitch et al., 1996, p. 29; Anderson et al., 1997, p. 28;



Bordat, 1997, p. 33; Cantonnet, Casset & Toda, 1997, p. 105; Palestirini, Barbero & Rolando, 1998, p. 104; Nádai & Merkl, 1999, p. 217; Tagliaferri, 1999, p. 4).

11. Presently the binomen *Aphodius putridus* is used for two or even three different species: Bast (1985), Dellacasa (1988, p. 393), Dzhambazishvili (1990, p. 31; 2000, p. 183), Franzen (1992, p. 244), Koch (1993, p. 230), Kim (1995, p. 70; 2000, p. 100), Köteles & Bakonyi (1996, p. 100), and Negrobov (2000, p. 93), e.g. use the name *Aphodius putridus* (Herbst, 1789) for *Aphodius fasciatus* (Olivier, 1789).

Paulian & Baraud (1982, p. 114), Jessop (1986, pp. 8, 21), Nikolaev (1987, p. 112), Lumaret (1990, p. 134), Nikčević (1991, p. 98), Silfverberg (1992, p. 37), Král (1993, p. 68), Miländer et al. (1993, p. 16), Carpeneto & Piattella (1995, p. 8), Hansen (1995, p. 126), Alexandrovitch (1996, p. 29), Bordat (1997, p. 33), Cantonnet et al. (1997, p. 103), Telnov et al. (1997, p. 57), Martynov (1998, p. 44), and Bragina (2002, p. 90), e.g. use the name *Aphodius putridus* (Geoffroy in Fourcroy, 1785) for *Aphodius arenarius* (Olivier, 1789).

Ádám (1994, p. 13; 1996, p. 304) used *Planolinus putridus* (Sturm, 1805) for *Aphodius borealis* Gyllenhal, 1827 (he promoted the subgenera of *Aphodius* to generic level).

However, *Aphodius fasciatus* (Olivier) is still in use (see para. 10), as is *Aphodius arenarius* (Olivier) (Rey, 1986, p. 119; Bouyon, 1991, p. 172; Gangloff, 1991, p. 35; Baraud, 1992, p. 249; Krell & Fery, 1992, p. 302; Rössner, 1993, p. 7, 1996, p. 49; Ziegler, Suikat & Gürlich, 1994, p. 5; Gürlich, Suikat & Ziegler, 1995, p. 71; Köteles & Bakonyi, 1996, p. 100; Köhler & Klausnitzer, 1998, p. 129; Nádai & Merkl, 1999, p. 218, 2000, p. 75; Dzhambazishvili, 2000, p. 181, Negrobov, 2000, p. 91; Rheinheimer, 2000, p. 103; Rössner & Kalz, 2000, p. 8; Verdú & Galante, 2000, p. 397; Bunalski, 2001, p. 30; Schmidt, 2002 p. 76; Weichselbaumer, 2003, p. 84) despite their preoccupation. The only way to name these two species unequivocally is to avoid the equivocal binomen *Aphodius putridus* and to use the well-known and unequivocal synonyms *Aphodius fasciatus* (Olivier) and *Aphodius arenarius* (Olivier) instead. As in another similar case (Case 2878, BZN 51: 121–127; Opinion 1890, BZN 55: 54–57) the formally correct acts of replacing long forgotten homonyms have resulted in nomenclatural inconsistency and confusion rather than in any kind of stability.

12. The International Commission on Zoological Nomenclature is accordingly asked:

(1) to use its plenary power:

(a) to suppress the name *putridus* Geoffroy in Fourcroy, 1785, as published in the binomen *Scarabaeus putridus*, for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;

(b) to rule that the following specific names are not invalid:

(i) *fasciatus* Olivier, 1789, as published in the binomen *Scarabaeus fasciatus*, by reason of being a junior primary homonym of *Scarabaeus fasciatus* Linnaeus, 1758;

(ii) *arenarius* Olivier, 1789, as published in the binomen *Scarabaeus arenarius*, by reason of being a junior primary homonym of *Scarabaeus arenarius* Fabricius, 1778;

(2) to place on the Official List of Specific Names in Zoology the following names:

(a) *fasciatus* Olivier, 1789, as published in the binomen *Scarabaeus fasciatus* (not invalid by reason of being a junior primary homonym of *Scarabaeus fasciatus* Linnaeus, 1758 as ruled in (1)(b)(i) above);

- (b) *arenarius* Fabricius, 1787, as published in the binomen *Scarabaeus arenarius*;
- (c) *arenarius* Olivier, 1789, as published in the binomen *Scarabaeus arenarius* (not invalid by reason of being a junior primary homonym of *Scarabaeus arenarius* Fabricius, 1787 as ruled in (1)(b)(ii) above);
- (3) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the following names:
  - (a) *putridus* Geoffroy in Fourcroy, 1785, as published in the binomen *Scarabaeus putridus* and as suppressed in (1)(a) above;
  - (b) *putridus* Herbst, 1789, as published in the binomen *Scarabaeus putridus* (a junior primary homonym of *S. putridus* Geoffroy in Fourcroy, 1785);
  - (c) *putridus* Sturm, 1805, as published in the binomen *Aphodius putridus* (a junior primary homonym of *S. putridus* Geoffroy in Fourcroy, 1785);
  - (d) *fasciatus* Fabricius, 1801, as published in the binomen *Aphodius fasciatus* (a junior primary homonym of *Aphodius fasciatus* Olivier, 1789).

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